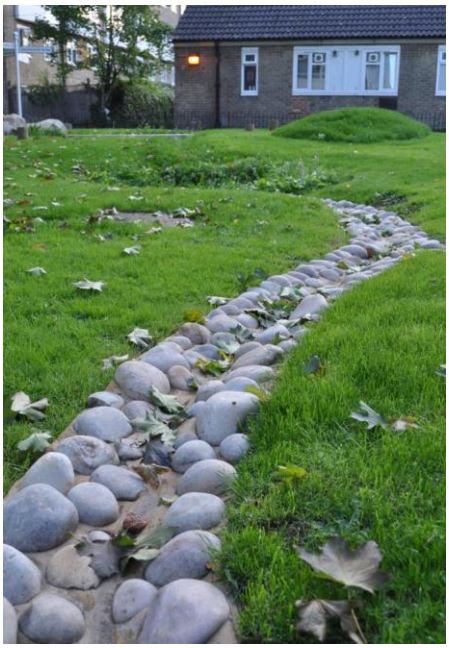


C768: Guidance on Construction of SuDS

Case Study 37.3 Hammersmith and Fulham social housing SuDS retrofit

Mark Bentley CMLI
Landscape Architect
Groundwork London

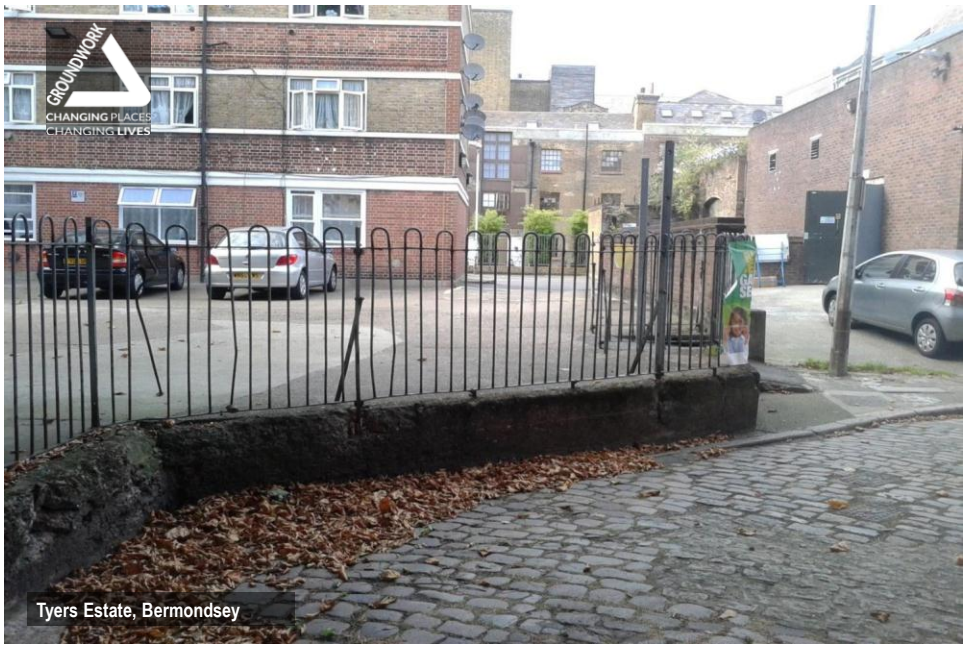
01/11/17

GROUNDWORK LONDON

Improve people's prospects
by increasing the confidence, skills, well-being and employability of those furthest removed from the labour market, in particular young people.

Create better places
by helping people work together to make their surroundings greener, safer and healthier and get involved in the way decisions are made about services in their area.

Promote greener living and working
by helping people learn more about their environmental impact and act responsibly to reduce natural resource use.


GROUNDWORK
CHANGING PLACES
CHANGING LIVES
Tyers Estate, Bermondsey


GROUNDWORK
CHANGING PLACES
CHANGING LIVES
Tyers Estate, Bermondsey


GROUNDWORK
CHANGING PLACES
CHANGING LIVES
St Johns Church, Hoxton


GROUNDWORK
CHANGING PLACES
CHANGING LIVES
St Johns Church, Hoxton


GROUNDWORK
CHANGING PLACES
CHANGING LIVES
QEOP Mobile Garden City, Stratford


GROUNDWORK
CHANGING PLACES
CHANGING LIVES
QEOP Mobile Garden City, Stratford

LIFE+

Climate proofing social housing landscapes

Main objective

Deliver a package of retrofit climate change adaption solutions across three social housing estates in the London Borough of Hammersmith & Fulham (LBHF). By targeting social housing sites the project will also help to reduce deprived communities' vulnerability to climate change.

Partnership

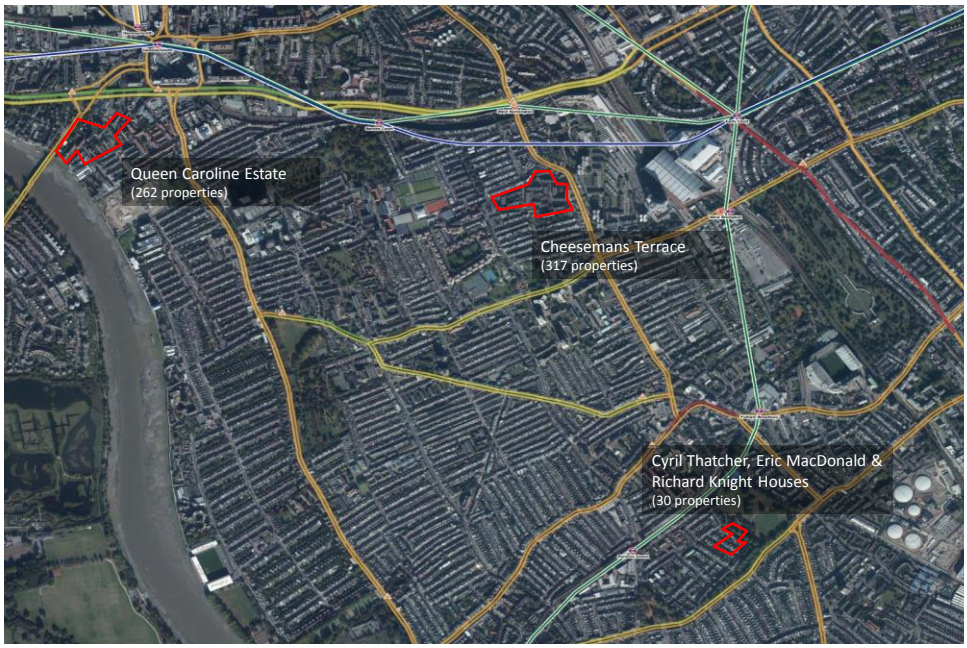
Led by Groundwork London in partnership with London Borough of Hammersmith and Fulham

LIFE+

Climate proofing social housing landscapes

Objectives:

- Design and implement **affordable and socially acceptable** retrofit climate change adaptation measures in social housing landscapes.
- Support the achievement of **wider Green Infrastructure (GI) goals**, e.g. biodiversity, air quality, play provision improvements etc.
- Implement main measures through **employment programmes** for long-term unemployed
- Develop a set of **training courses** for housing and grounds maintenance professionals
- Develop a methodology for **resident engagement**
- Evaluate **technical performance** and **social return on investment**.

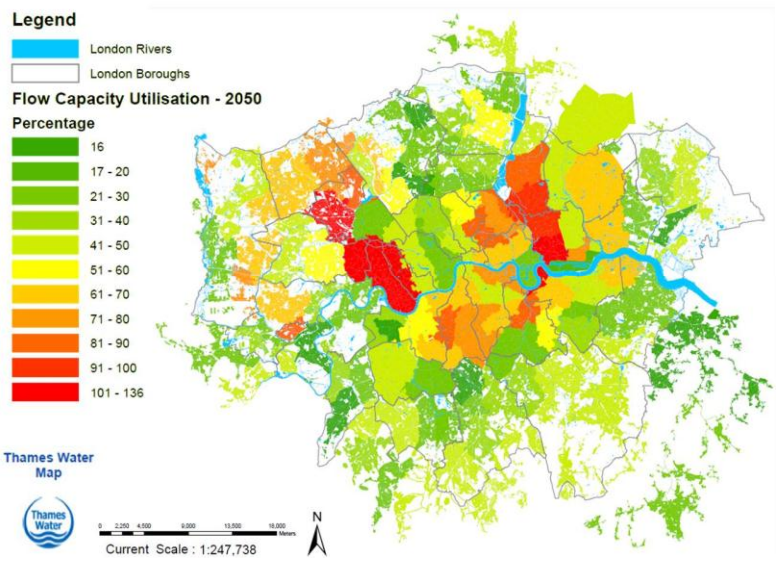

Queen Caroline Estate
(262 properties)
Cheesemans Terrace
(317 properties)
Cyril Thatcher, Eric MacDonald &
Richard Knight Houses
(30 properties)

LIFE+

Climate proofing social housing landscapes

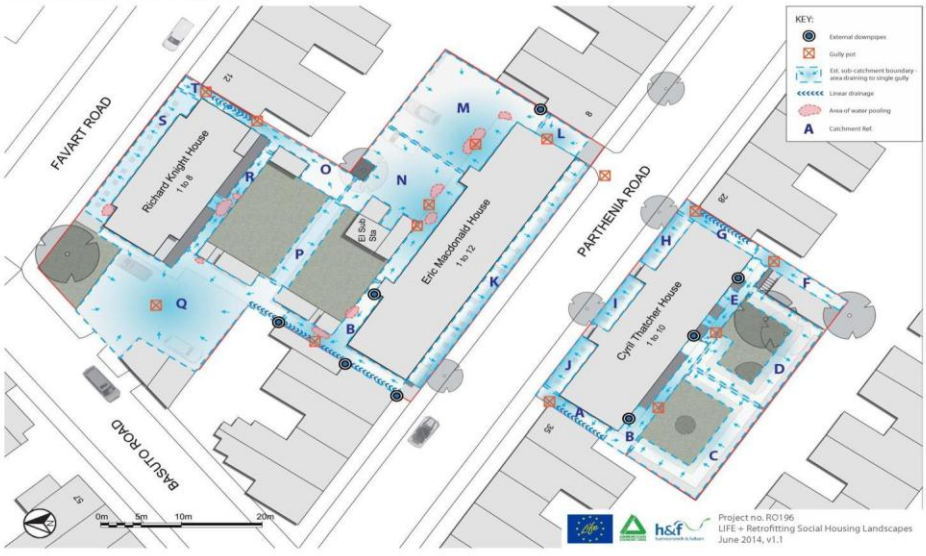
Improvements:

- 4,500 m^2 of new landscaped areas
- 2,600 m^2 of new and improved green infrastructure
- 450 m^2 of green roofs
- Surface water from 3,200m^2 of impermeable surfacing diverted away from the combined sewer into green infrastructure
- 22 Green Team trainees achieving City & Guilds Level 1 in Practical Horticulture Skills and supported into employment
- Food growing/ gardening groups established on all three estates



LIFE+ | **RICHARD KNIGHT HOUSE**

CER Plan S3: DRAINAGE SURVEY



CER Plan S6: DRAINAGE OPPORTUNITIES

CER Plan S7: CONSULTATION COMMENTS

GREEN ROOFS

Opportunity 1.1 Green roof on Cyril Thatcher House

Type of building	Four storey residential
Roof type/structure	• Asphalt covering • Build up beneath assumed to be sheathing layer, concrete screed and concrete deck (1960s). • Low parapet
Approximate dimensions (m) & area unobstructed roof area (m^2)	30m x 9m 260m^2
Pitch	Flat
Existing roof drainage	3 no. uncovered gullies to downpipes that run internally within the building (see photo)
Services & other obstructions	3 no. gullies to downpipes that run internally within the building (see photo) 3 no. flue pipes 1 no. access building
Access & safety	Via ladder in main stairwell. No safety railing/ restraint
Photos **Works required/Notes:**	

Opportunity 1.2 Green roof on Eric MacDonald House

Type of building	Three storey residential
Roof type/structure	• Asphalt covering • Build up beneath assumed to be sheathing layer, concrete screed and concrete deck (1960s). • Low parapet wall
Approximate dimensions (m) & unobstructed roof area (m^2)	37.5m x 9m 327m^2
Pitch	Flat
Existing roof drainage	4 no. gullies to downpipes that run internally within the building (see photo)
Services & other obstructions	4 no. gullies to downpipes that run internally (see picture) 4 no. flue pipes 1 no. access building
Access & safety	Via ladder in main stair well. Safety railing around access building.
Photos **Works required/Notes:**	

GROUND-LEVEL SUDS (vegetated)

Opportunity 3.1 Ground level SuDS in amenity grass space btw Eric Mac & Richard Knight Hses

Existing surface	Amenity grass
Approximate dimensions (m) & unobstructed area (m^2)	20.2m x 13.6m; 232m^2
Source(s) of water to be managed (catchment size)	Adj. hard standing [small, without significant re-laying] From roofs of some ancillary buildings [?] From roof of Eric MacDonald* [150-200m^2] *would require diversion of internal downpipes
Falls into space	Existing path sheds to grass + some adj. hard standing
Falls across the space	Shallow gradient from E Mac towards Richard Knight
Obstructions	Path divides the grass areas in two. Services?
Existing use	Used by residents for community activities (e.g. BBQ) in summer
Photo **Works required/Notes:**	

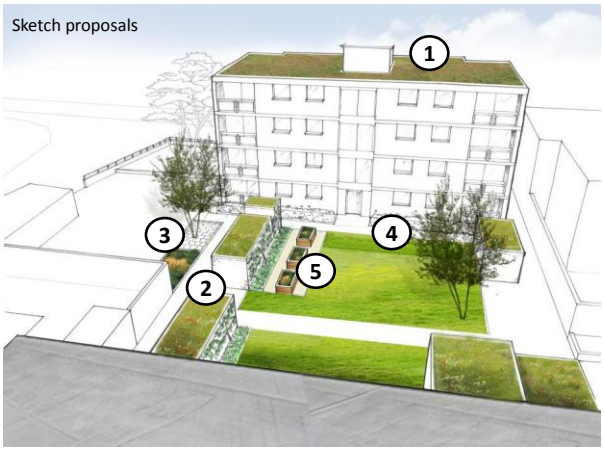
Opportunity 3.2 Pocket rain garden on the edge of the car park adjacent to Richard Knight House

Existing surface	Tarmac car park
Approximate dimensions (m) & unobstructed area (m^2)	9.2m x 2.0m; 18.4m^2
Source(s) of water to be managed	Adj. hard standing via linear drain* [76m^2] From roofs of 17 Parthenia Road* [83m^2] *would require re-laying of path and linear drain to new fall to capture the entire area outlined
Falls into space	Some of the existing hard standing and the roof of the extension to 17 Parthenia Road
Falls across the space	N/A
Obstructions	Existing car park so parking and vehicle turning would need to be considered
Existing use	Car park
Photo **Works required/Notes:**	

SITE: Cyril Thatcher, Eric MacDonald & Richard Knight Houses

Adaptation measure	Summary assessment (visit with DS, GG & RW)	Technical feasibility	Financial feasibility		Maintenance resources	Effectiveness - climate change adaptation (50%)					GI functionality (25%)								Acceptability (25%)					Relationship to other measures	
	☺ Prime opportunity ☑ Good opportunity ? Maybe ☒ Discount	Yes/No/Maybe (see comments)	Indicative capital cost, £	Funds already assigned	? / neutral / + / ++ (see comments)	Building	Open space	Surface water	Est. catchment area (ha?)	Est. annual run-off (m3)	Water scarcity & drought	GI: Mitigation	Air quality	Water quality	Biodiversity	Visual amenity	Play & rec.	Food growing	Education	Addresses identified problem/ deficiency	Meets community identified opportunity	Opportunity for community activity	Conflicts with community use	Addresses wider landscape/ quality issue (e.g. paving in need of renewal)	Links well with...	Could core functionality be delivered by alt. measures?
WEIGHTING (SITE SPECIFIC)						25%	50%				25%	5%	5%	10%	20%	25%	5%	10%	20%							
Green roofs																										
Extensive green roof - Cyril Thatcher	☑	Maybe - Need building plans or to take core	£41.0k	N	neutral?	M	L	M	260	134	0	L	L	M	M	L	0	0	M	Y	N	N	N	N		N
Extensive green roof - Eric MacDonald	☑		£51.5k	N	neutral?	M	L	M	336	168	0	L	L	M	M	L	0	0	M	Y	N	N	N	N		N
Extensive green roof - Richard Knight	☑		£30.0k	Y	neutral?	M	L	M	195	98	0	L	L	M	M	L	0	0	M	Y	N	N	N	N		N
Extensive green roof - Pram sheds	☺	Yes	£9.5k	N	+	0	L	M	93	47	0	0	L	L	M	M	0	0	M	N	Y	Y	N	N		N
Ground-level SuDS (vegetated)																										
Ground level SuDS in amenity grass space between Eric MacDonald & Richard Knight Houses. Designed to manage rain water from adjacent hard surfaces. - small-scale, soft-dig SuDS in green space (e.g. rain garden, basin, swale);	☺	Yes	£5.5k	N	neutral?	0	L	M			L	0	0	L	M	M	M	0	M	Y	N	N	? (Yes - depends on...)	Y	2.2	N
Pocket rain garden on the edge of the car park adjacent to Richard Knight House. Designed to manage surface water draining from the adjacent paths and water entering the linear gulley running adjacent to Eric MacDonald House from both the adjacent paths and the roofs of the adjacent property (No. 17 Parthenia Road). Works to include: - Path re-surfacing and re-alignment of the linear drain to support/maximise drainage to rain garden. - Creation of rain garden in existing tarmac area (car park) - 1 No. tree in rain garden	☺	Yes	£7.5k	N	neutral?	0		M			0	0	0	L	L	M	0	0	M	N	Y	N	? (Yes - depends on...)	Y		4.2

LIFE+ RICHARD KNIGHT HOUSE

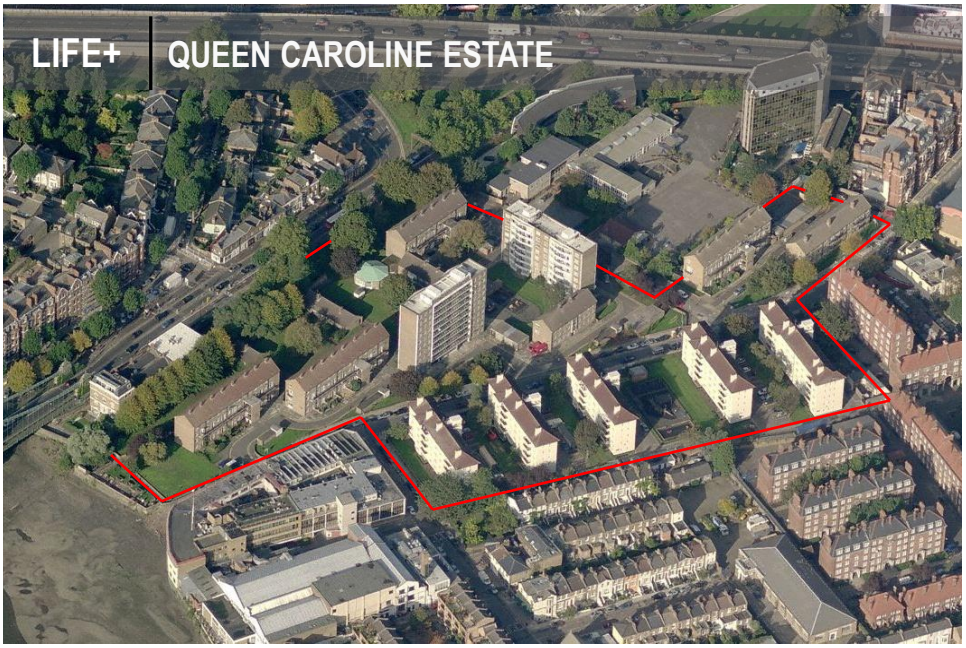


1. Extensive green roof on residential block
2. Extensive green roofs to bin stores
3. Rain garden and tree pit
4. Rain garden
5. Food growing beds


2


3


4
5


LIFE+
QUEEN CAROLINE ESTATE


LIFE+
QUEEN CAROLINE ESTATE


COMMUNITY CENTRE
ADELA HOUSE
SOPHIA HOUSE
HENRIETTA HOUSE
KEY:
Existing tree
Proposed tree
Existing grass
Grass basin
Stoney basin
Rain garden
Boardwalk
Low mound
Boulders/ balance beam
Downpipe
Overflow to sewer
Water movement